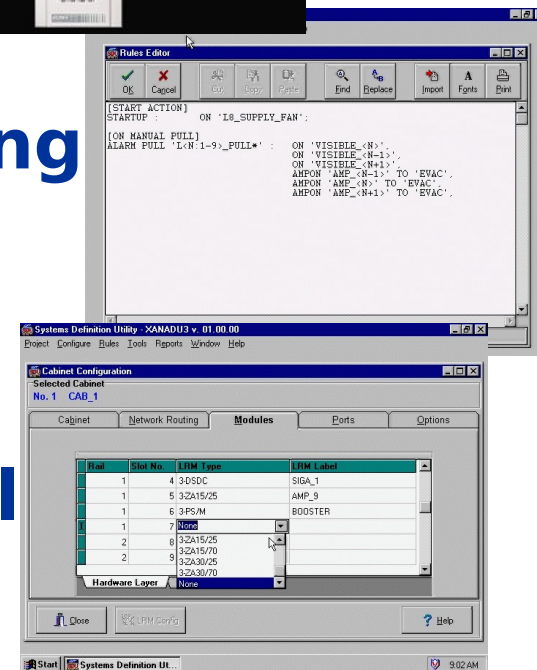
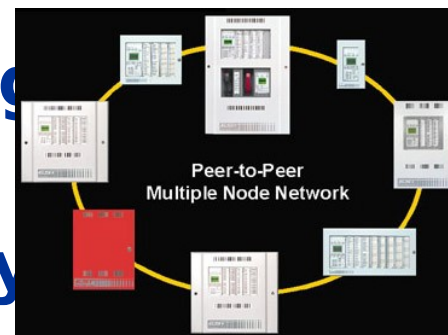


Signature Data Circuit Mapping: What is It, and How Does It Work?

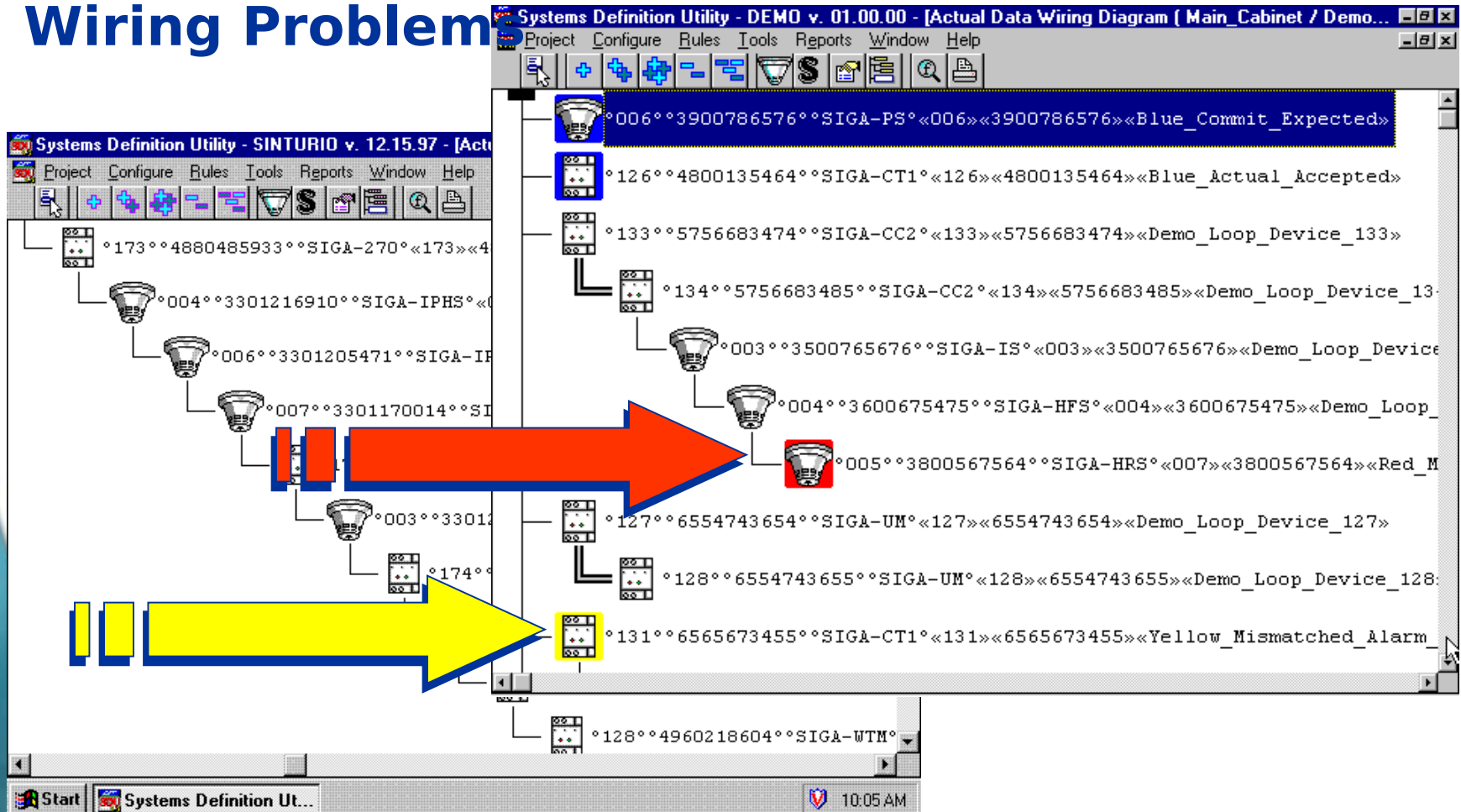
EST Product Innovations

- Multi-priority Token Ring
- **Circuit Mapping**
- Multi-Sensor Technology
- Bar Code Addressing
- Rules & Objects Programming
- 8 Channel Digital Audio
- Ground Fault Detection by Device
- Multiple Levels of Survivability



Signature Mapping Provides:

Reliable “As-Built” Drawings to Help Solve Wiring Problems

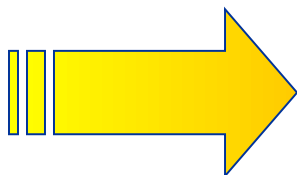




Signature Mapping Provides:

Benefits to -

- Installers - verification that devices and wiring are correct *during installation*
- Service Personnel - ability to locate and identify problems quickly
- Building Owners - reduction in maintenance costs



***Mapping is ONLY available with EST
fire alarm systems.***

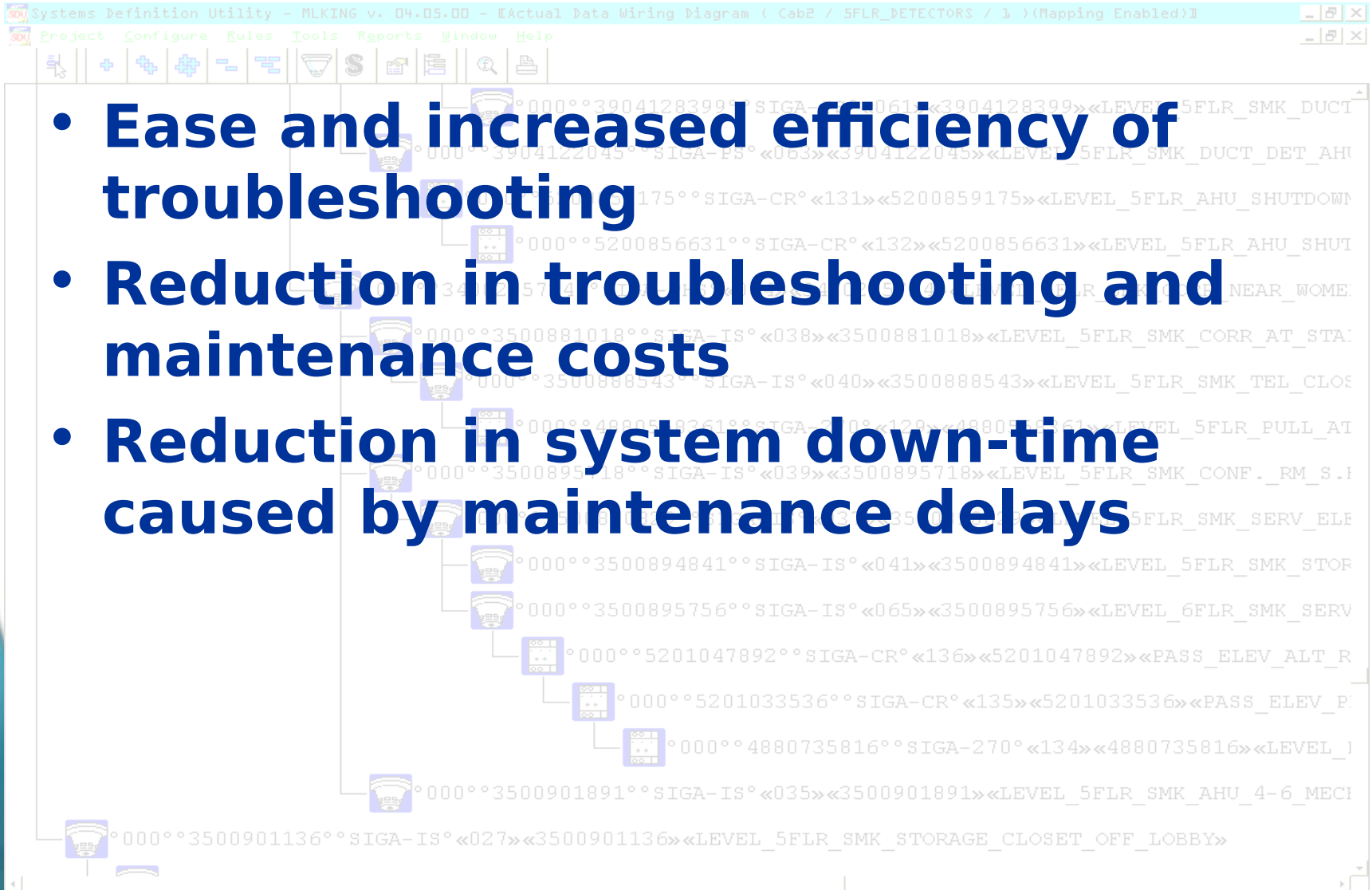
What Is Mapping?

- **The ability of each Signature device to electrically locate itself on the Signature Data Circuit (SDC) with respect to every other Signature device installed on the circuit.**
- **An SDC map shows the actual electrical relationships between all Signature devices as they are installed on the device circuit, not the way the contractor “swears” they were installed.**



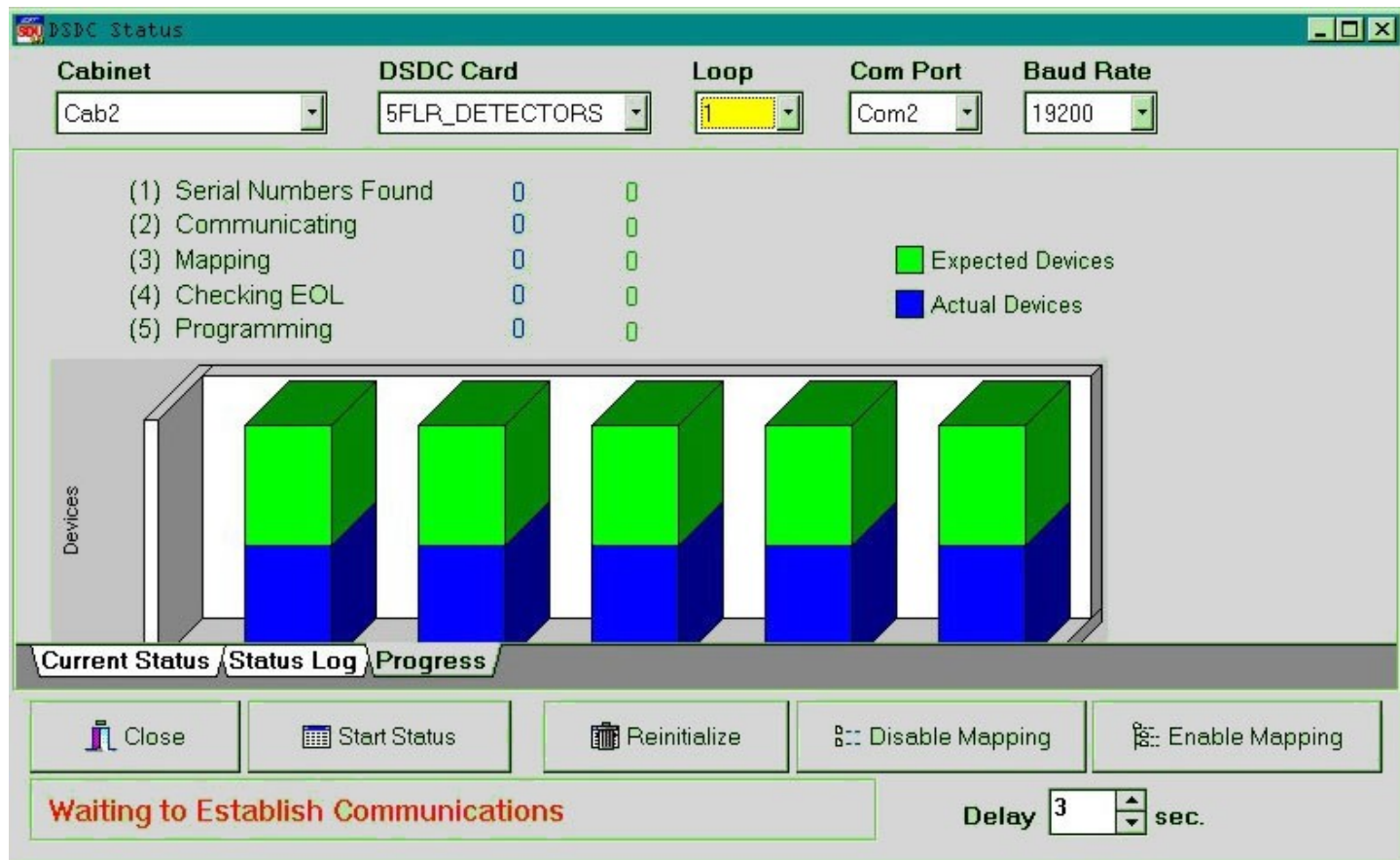
Why Map a Circuit?

- Ease and increased efficiency of troubleshooting
- Reduction in troubleshooting and maintenance costs
- Reduction in system down-time caused by maintenance delays



Tools for Use With the Mapping Function

- Mapping in Progress screen





Tools for Use With the Mapping Function

- **Circuit Status screen**

DSDC Status

Cabinet: B1_C1 DSDC Card: B1_C1_DSDC1 Loop: 1 Com Port: Com2 Baud Rate: 9600

<input checked="" type="radio"/> Internal Fault	<input checked="" type="radio"/> Balanced Map
<input checked="" type="radio"/> Data Checksum Trouble	<input checked="" type="radio"/> Programming Mode
<input checked="" type="radio"/> Code Checksum Trouble	<input checked="" type="radio"/> RAM Fault
<input checked="" type="radio"/> Data Card Fault	<input checked="" type="radio"/> Stack Fault
<input checked="" type="radio"/> Line Fault	<input checked="" type="radio"/> Map Pending
<input checked="" type="radio"/> Map Fault	<input checked="" type="radio"/> Dev. New Starts In Progress
<input checked="" type="radio"/> Mapping In Progress	<input checked="" type="radio"/> Stand Alone
<input checked="" type="radio"/> Map Disabled	<input checked="" type="radio"/> Stand Alone Alarm
<input checked="" type="radio"/> Dirty Device	<input checked="" type="radio"/> Data Card Ground Fault
<input checked="" type="radio"/> Unprogrammed Device Alarm	<input checked="" type="radio"/> Device Ground Fault
<input checked="" type="radio"/> Ground Fault	<input checked="" type="radio"/> Delta Suspended
<input checked="" type="radio"/> Line Initialization	<input checked="" type="radio"/> System Reset
<input checked="" type="radio"/> Annunciator Fault	<input checked="" type="radio"/> Data Card Startup Fault
<input checked="" type="radio"/> Bootloader Mode	<input checked="" type="radio"/> Smoke Power Fault
<input checked="" type="radio"/> Data Card Communication Fault	<input checked="" type="radio"/> Unprogrammed Device Trouble
<input checked="" type="radio"/> Data Card Internal Fault	

Current Status / Status Log / Progress

Close Start Status Reinitialize Disable Mapping Enable Mapping

Waiting to Establish Communications Delay 3 sec.



Tools for Use With the Mapping Function

- Circuit Status screen

DSDC Status

Cabinet: B1_C1 | DSDC Card: B1_C1_DSDC1 | Loop: 1 | Com Port: Com2 | Baud Rate: 9600

<input type="radio"/> Internal Fault	<input type="radio"/> Balanced Map
<input type="radio"/> Data Checksum Trouble	<input type="radio"/> Programming Mode
<input type="radio"/> Code Checksum Trouble	<input type="radio"/> RAM Fault
<input type="radio"/> Data Card Fault	<input type="radio"/> Stack Fault
<input type="radio"/> Line Fault	<input type="radio"/> Map Pending
<input checked="" type="radio"/> Map Fault	<input type="radio"/> Dev. New Starts In Progress
<input type="radio"/> Mapping In Progress	<input type="radio"/> Stand Alone
<input type="radio"/> Map Disabled	<input type="radio"/> Stand Alone Alarm
<input checked="" type="radio"/> Dirty Device	<input type="radio"/> Data Card Ground Fault
<input type="radio"/> Unprogrammed Device Alarm	<input checked="" type="radio"/> Device Ground Fault
<input type="radio"/> Ground Fault	<input type="radio"/> Delta Suspended
<input type="radio"/> Line Initialization	<input type="radio"/> System Reset
<input type="radio"/> Annunciator Fault	<input type="radio"/> Data Card Startup Fault
<input type="radio"/> Bootloader Mode	<input type="radio"/> Smoke Power Fault
<input type="radio"/> Data Card Communication Fault	<input type="radio"/> Unprogrammed Device Trouble
<input type="radio"/> Data Card Internal Fault	

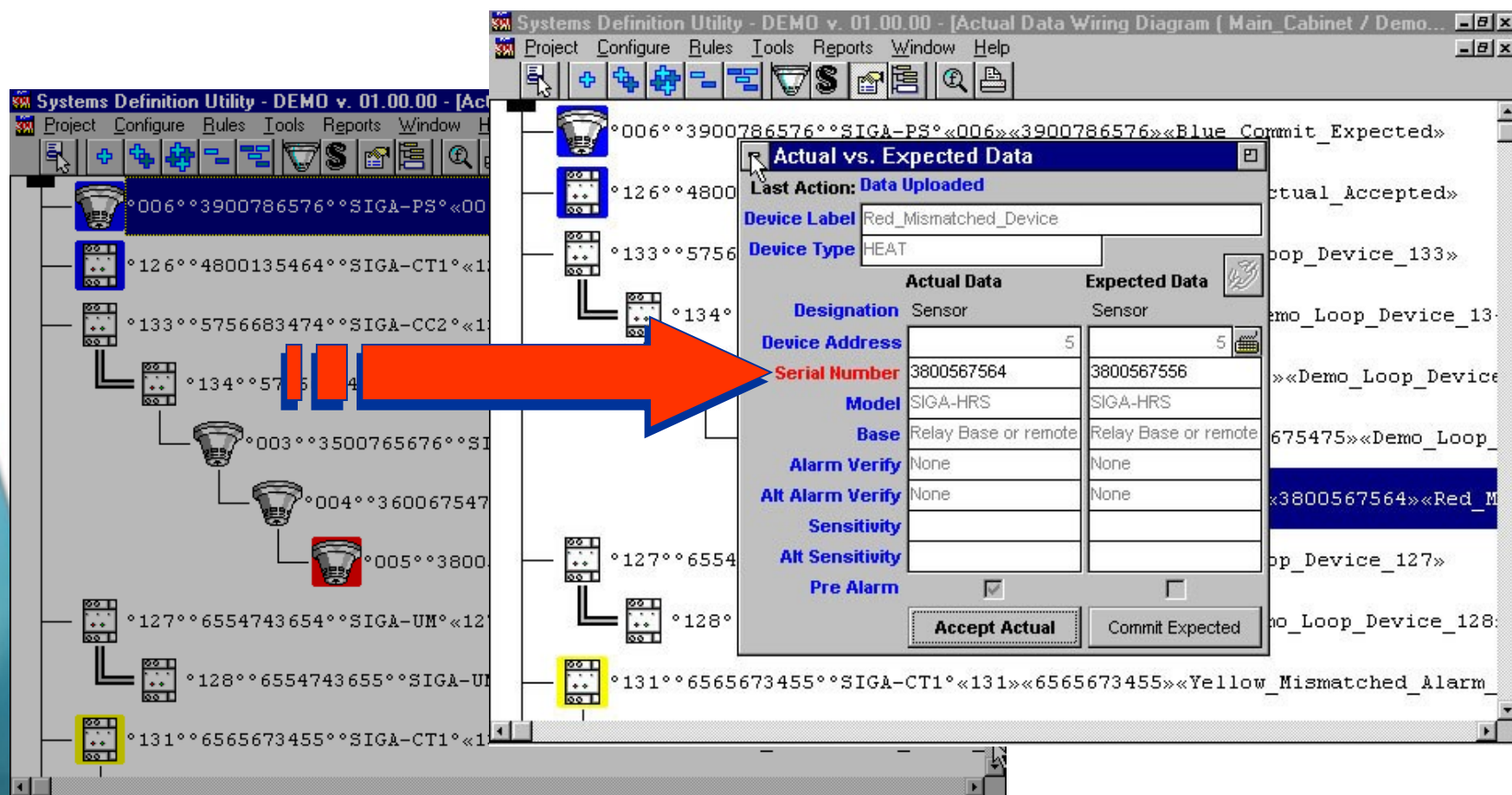
Current Status | Status Log | Progress

Close | Start Status | Reinitialize | Disable Mapping | Enable Mapping

Delay 3 sec.

Additional Mapping Benefits

- Identify Unexpected Devices



The screenshot displays the Systems Definition Utility (v. 01.00.00) interface. The main window shows a wiring diagram with various devices connected. A red arrow points from a device in the diagram to a dialog box titled "Actual vs. Expected Data".

The dialog box shows the following information:

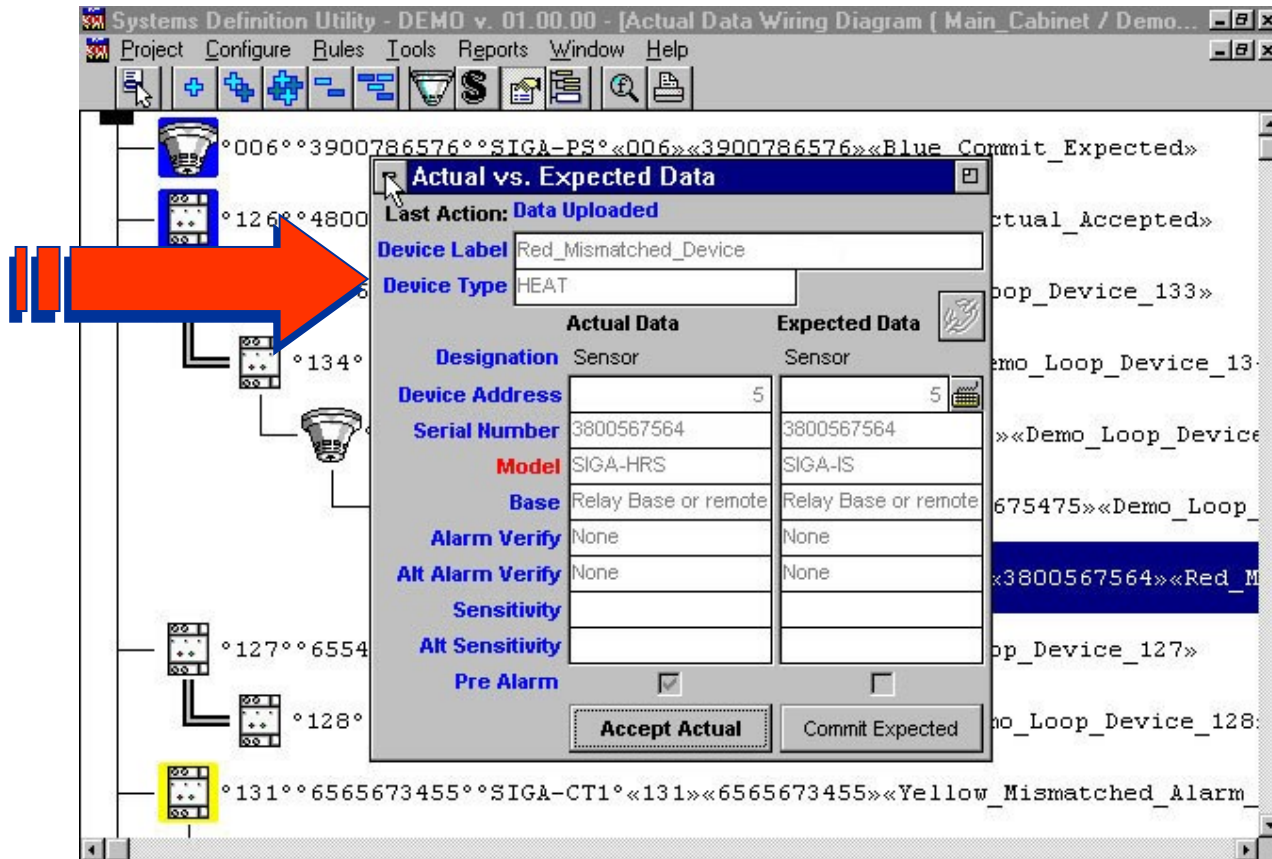
- Last Action:** Data Uploaded
- Device Label:** Red_Mismatched_Device
- Device Type:** HEAT

	Actual Data	Expected Data
Designation	Sensor	Sensor
Device Address	5	5
Serial Number	3800567564	3800567556
Model	SIGA-HRS	SIGA-HRS
Base	Relay Base or remote	Relay Base or remote
Alarm Verify	None	None
Alt Alarm Verify	None	None
Sensitivity		
Alt Sensitivity		
Pre Alarm	<input checked="" type="checkbox"/>	<input type="checkbox"/>

At the bottom of the dialog box, there are two buttons: "Accept Actual" and "Commit Expected".

Additional Mapping Benefits

- Incorrect Device Type Installation



The screenshot shows the 'Systems Definition Utility - DEMO v. 01.00.00' interface. A wiring diagram on the left shows a device at address 131 (yellow icon) connected to a loop. A large red arrow points from this device to the 'Actual vs. Expected Data' dialog box.

Actual vs. Expected Data

Last Action: Data Uploaded

Device Label: Red_Mismatched_Device

Device Type: HEAT

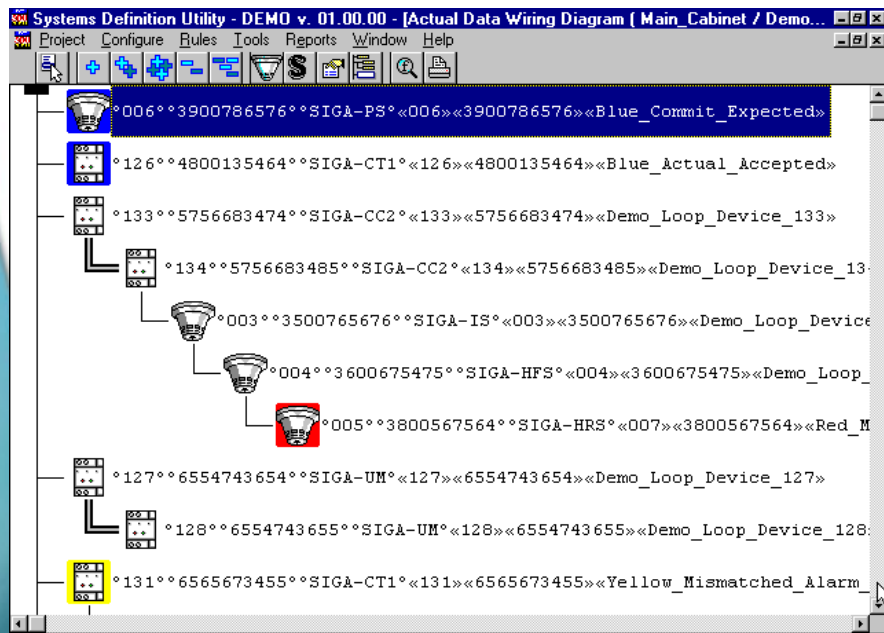
	Actual Data	Expected Data
Designation	Sensor	Sensor
Device Address	5	5
Serial Number	3800567564	3800567564
Model	SIGA-HRS	SIGA-IS
Base	Relay Base or remote	Relay Base or remote
Alarm Verify	None	None
Alt Alarm Verify	None	None
Sensitivity		
Alt Sensitivity		
Pre Alarm	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Buttons: Accept Actual, Commit Expected

Background text in the wiring diagram includes: «006»°3900786576°°SIGA-PS°«006»°3900786576°«Blue Commit_Expected», «126»°4800, «134»°, «127»°6554, «128»°, «131»°6565673455°°SIGA-CT1°«131»°6565673455°«Yellow_Mismatched_Alarm», and various loop device labels like «Demo_Loop_Device_133».

Actual vs. Expected Device Parameter Comparisons

- **Device Background Color Indicates Comparison Status**



- **White** = No Conflict
- **Blue** = Change Made
- **Yellow** = Minor Conflict (Verification times, sensitivity)
- **Red** = Major Conflict (Personality Code, model, address, S/N, base)

Actual vs. Expected Device Parameter Comparisons

Systems Definition Utility - DEMO v. 01.00.00 - [Actual Data Wiring Diagram (Main_Cabinet / Demo...]

Project Configure Rules Tools Reports Window Help

006°3900786576°SIGA-PS°006°3900786576°Blue Commit_Expected>

126°4800

133°5756

134°

127°6554

128°

131°6565673455°SIGA-CT1°131°6565673455°Yellow_Mismatched_Alarm_

Actual vs. Expected Data

Last Action: Data Uploaded

Device Label: Yellow_Mismatched_Alarm_Verify

Device Type: HEAT

	Actual Data	Expected Data
Designation	Sensor	Sensor
Device Address	5	7
Serial Number	3800567564	3800567564
Model	SIGA-HRS	SIGA-HRS
Base	Relay Base or remote	Relay Base or remote
Alarm Verify	None	3 seconds
Alt Alarm Verify	None	None
Sensitivity		
Alt Sensitivity		
Pre Alarm	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Accept Actual Commit Expected



Actual vs. Expected Device Parameter Comparisons

Systems Definition Utility - DEMO v. 01.00.00 - [Actual Data Wiring Diagram (Main_Cabinet / Demo...]

Project Configure Rules Tools Reports Window Help

°006°°3900786576°°SIGA-PS°«006»«3900786576»«Blue Commit_Expected»

°126°°480013

°133°°575668

°134°°5

°00

°127°°655474

°128°°6

°131°°6565673455°°SIGA-CT1°«131»«6565673455»«Yellow_Mismatched_Alarm_Ve

Actual vs. Expected Data

Last Action: **Data Uploaded**

Device Label: Yellow_Mismatched_Alarm_Verify

Device Type: HEAT

	Actual Data	Expected Data
Designation	Module	Module
Device Address	131	131
Serial Number	6565673455	6565673455
Model	SIGA-CT1	SIGA-CT1
Personality	1	1
Alarm Verify	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Alt Alarm Verify	<input type="checkbox"/>	<input type="checkbox"/>
Standalone Alarm	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Accept Actual **Commit Expected**



Actual vs. Expected Device Parameter Comparisons

Systems Definition Utility - DEMO v. 01.00.00 - [Actual Data Wiring Diagram (Main_Cabinet / Demo...]

Project Configure Rules Tools Reports Window Help

°006°°3900786576°°SIGA-PS°°006°°3900786576°°Blue Commit_Expected»

°126°°4800

°133°°5756

°134°

°127°°6554

°128°

°131°°6565673455°°SIGA-CT1°°131°°6565673455°°Yellow_Mismatched_Alarm_

Actual vs. Expected Data

Last Action: **Data Uploaded**

Device Label: Red_Mismatched_Device_Address

Device Type: HEAT

	Actual Data	Expected Data
Designation	Sensor	Sensor
Device Address	5	7
Serial Number	3800567564	3800567564
Model	SIGA-HRS	SIGA-HRS
Base	Relay Base or remote	Relay Base or remote
Alarm Verify	None	None
Alt Alarm Verify	None	None
Sensitivity		
Alt Sensitivity		
Pre Alarm	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Accept Actual **Commit Expected**

Actual_Accepted»

op_Device_133»

emo_Loop_Device_13-

»«Demo_Loop_Device

675475»«Demo_Loop_

«3800567564»«Red_M

op_Device_127»

no_Loop_Device_128:

Device Replacement Simplified

- **Replacements for damaged devices are automatically accepted by the system if both devices have the same device type**
- **The system automatically enters the appropriate parameters into the replacement device's memory**
- **Incorrect devices generate a device mis-match and map fault**



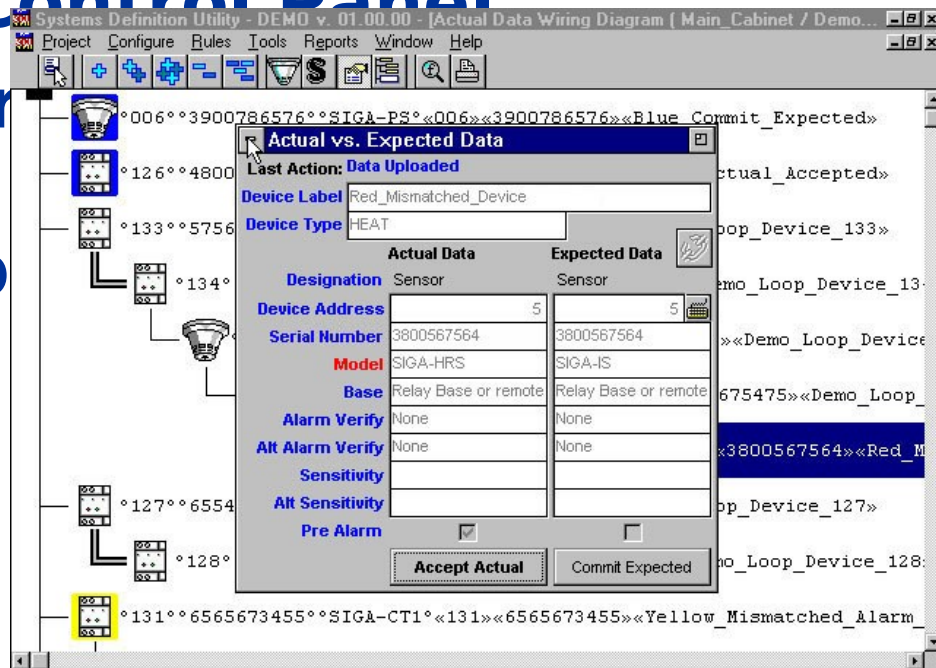


System Function Correlates with Device Location

- Mapping permits the correlation of a system function with a device location on a map, ***not the device's address!***
 - Should devices inadvertently be swapped during service, the system will function as designed. The functionality remains constant and **DOES NOT FOLLOW THE DEVICE!**

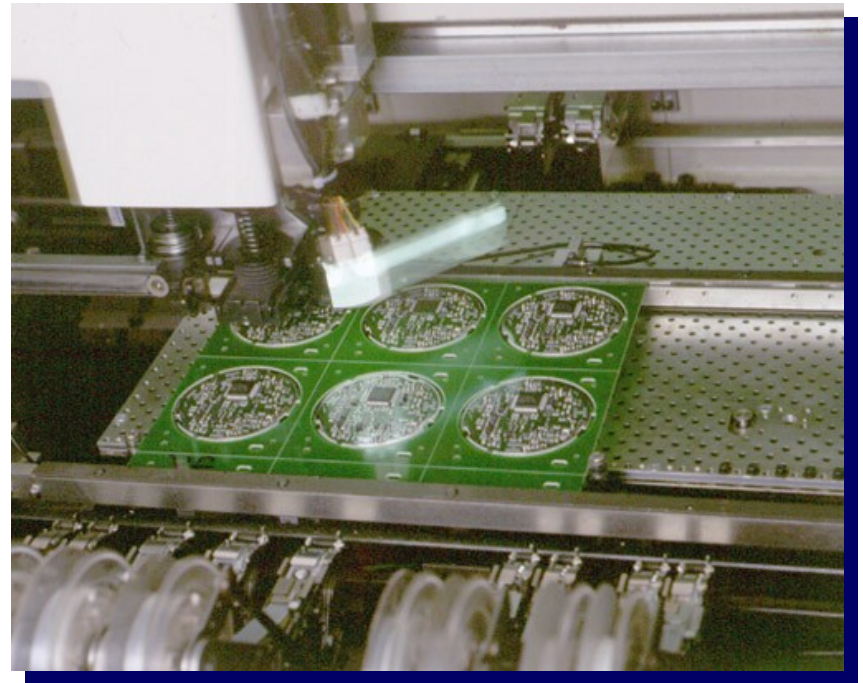
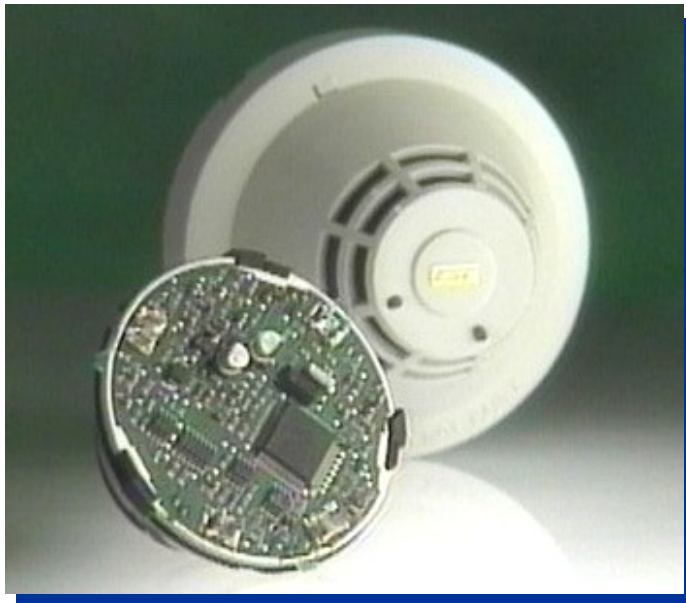
Easy Identification of Devices Added or Removed From Circuit

- A Map Fault is generated and displayed on the Control Panel
- An Unexpected (or missing) device is shown on the map



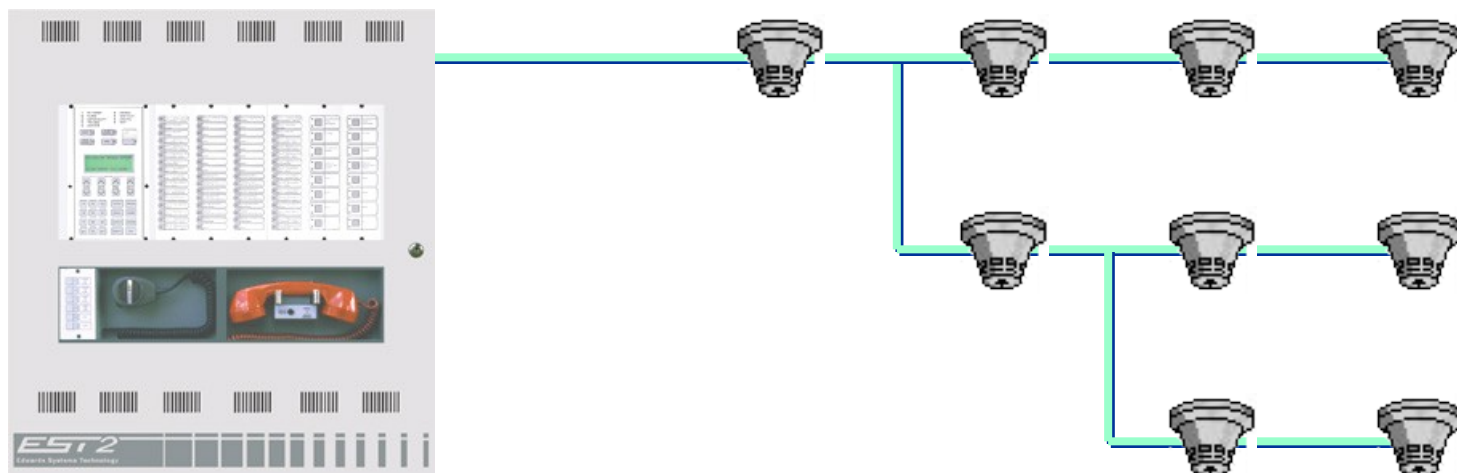
How Does Mapping Work?

- Each Signature Device has a unique serial number which is entered into memory at the time of manufacture



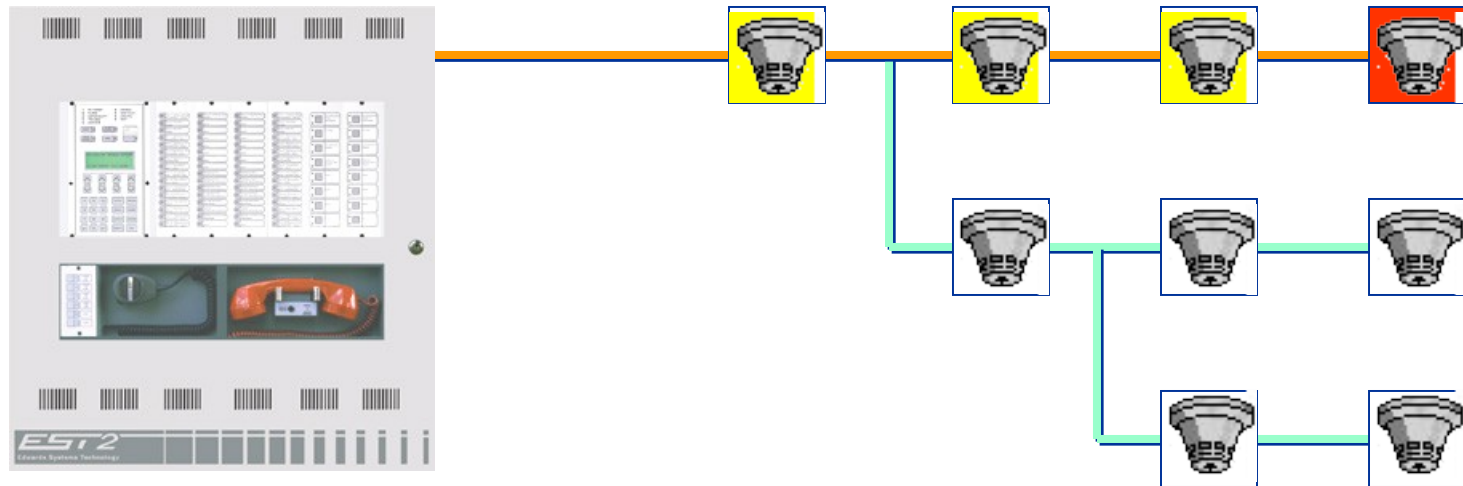
Circuit/Device Identification

Upon startup, the SDC identifies every serial number it sees.



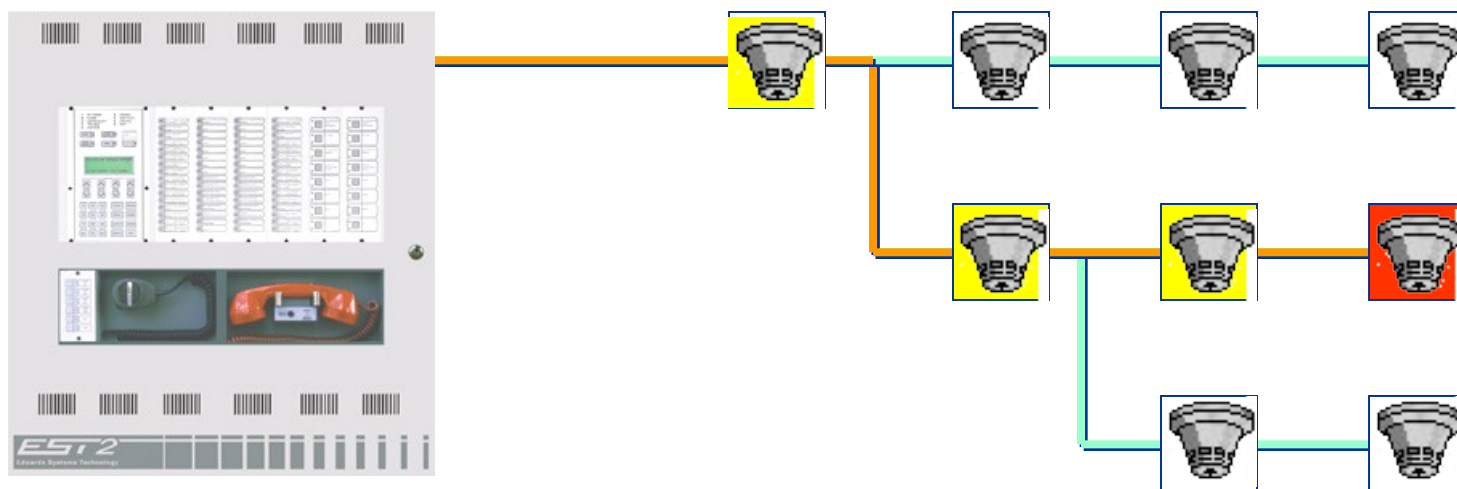
Circuit/Device Identification

The SDC instructs one device to momentarily increase its load; then checks all the remaining devices to see the effect of the increased load current.



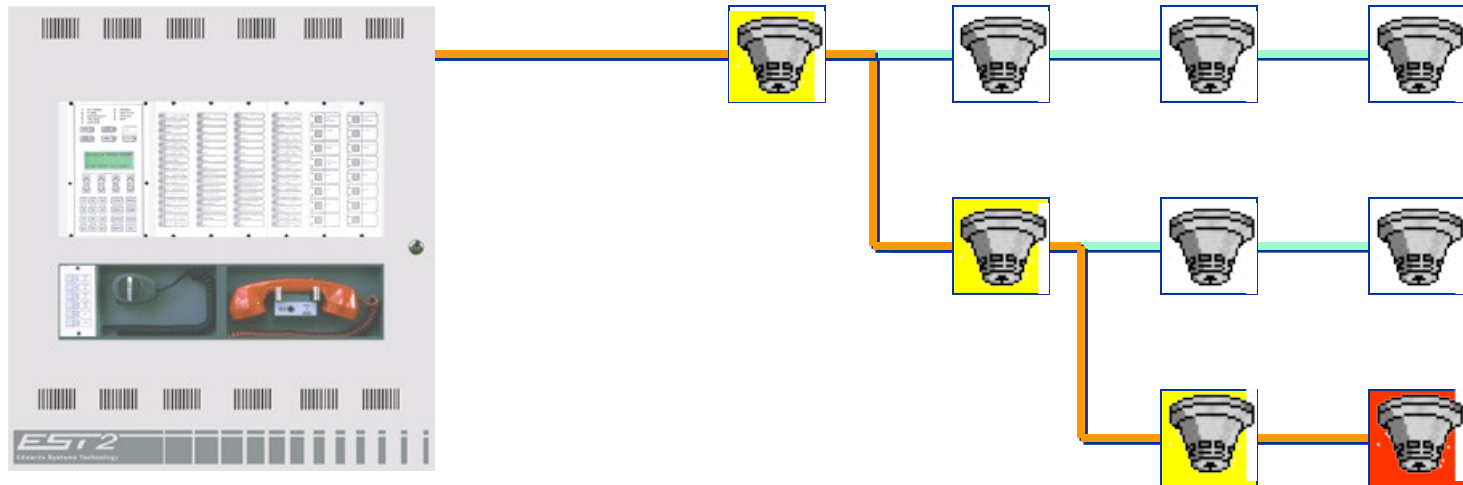
Circuit/Device Identification

The SDC instructs one device to momentarily increase its load; then checks all the remaining devices to see the effect of the increased load current.



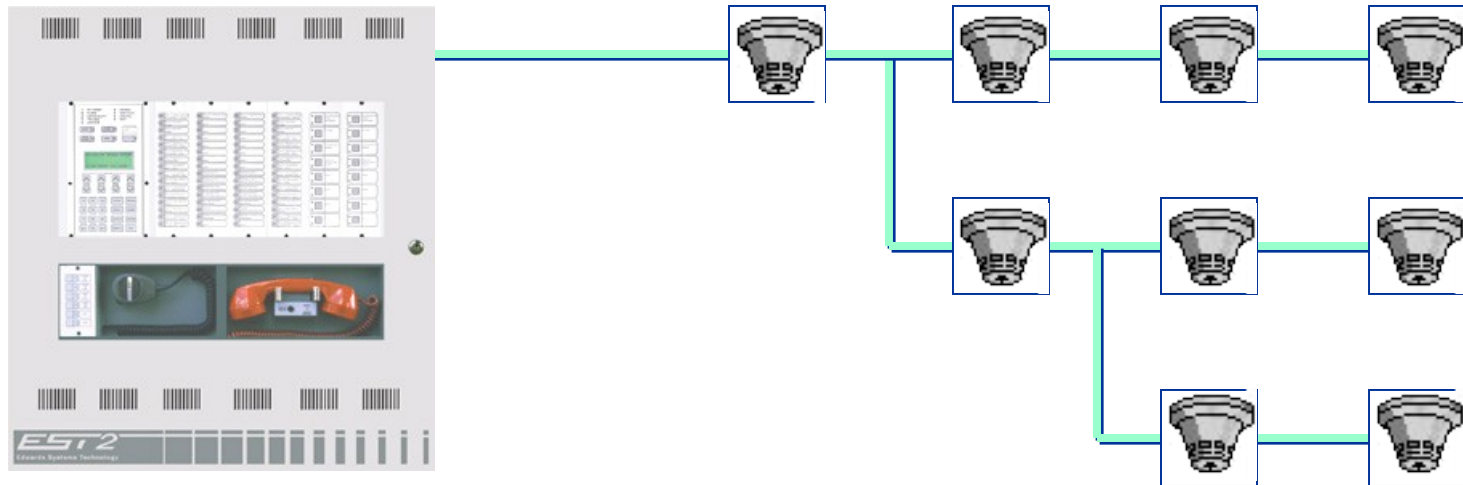
Circuit/Device Identification

The SDC instructs one device to momentarily increase its load; then checks all the remaining devices to see the effect of the increased load current.



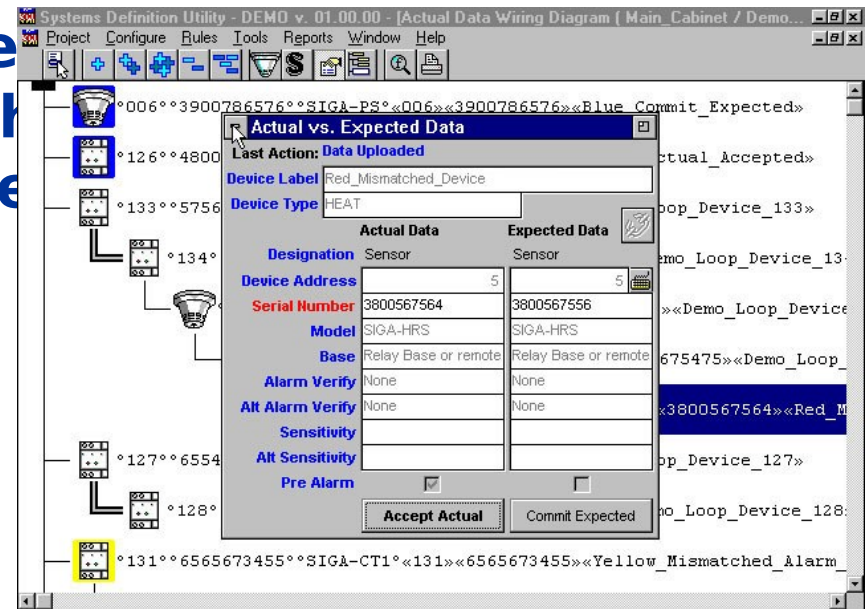
Circuit/Device Identification

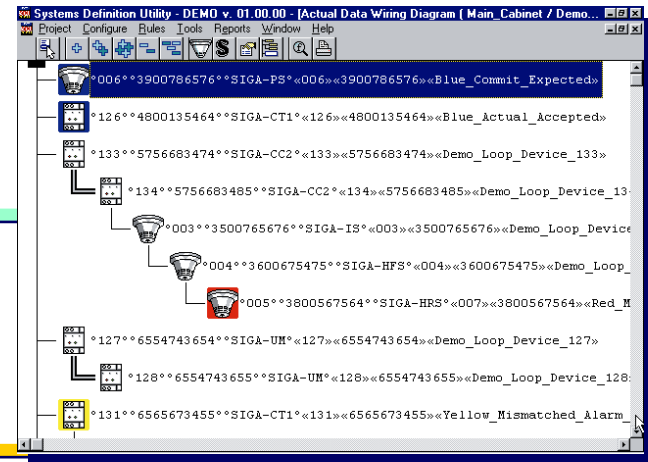
After every device has gone through this cycle, the system knows the relationship between all devices and can generate a map.



Basic Mapping Advantages

- Quick, easy, and efficient troubleshooting = *Low Maintenance Costs*
- Accurate “As-built” maps of circuits as installed
- Comparison of expected device parameters with actual device parameters





Signature Data Circuit Mapping: What is It, and How Does It Work?